CLAIMS

1. A glycoconjugate comprising a *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivative in which sialic acid residue N-acetyl groups are replaced with N-acyl groups, wherein said MenB OS derivative is covalently attached to a carrier molecule and has an average degree of polymerization (Dp) of about 10 to about 20.

2. The glycoconjugate of claim 1 wherein the N-acetyl groups are replaced with N-propionyl groups.

3. The glycoconjugate of claim 1 wherein the carrier molecule is a bacterial toxoid.

4. The glycoconjugate of claim 3 wherein the bacterial toxoid is tetanus toxoid.

5. The glycoconjugate of claim 1 wherein the carrier molecule is a nontoxic mutant bacterial toxoid.

6. The glycoconjugate of claim 5 wherein the mutant bacterial toxoid is CRM_{197}.

7. The glycoconjugate of claim 1 wherein the MenB OS derivative has an average Dp of about 12 to about 18.

8. A glycoconjugate comprising a *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivative in which sialic acid residue N-acetyl groups are replaced with N-propionyl groups, wherein said MenB OS derivative is covalently attached to a CRM_{197}

toxoid protein carrier and has an average Dp of about 12 to about 18.

9. The glycoconjugate of claim 1 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

10. The glycoconjugate of claim 8 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

11. A method for producing a glycoconjugate comprising:

(a) providing a heterogenous population of *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivatives in which sialic acid residue N-acetyl groups are replaced with N-acyl groups;

(b) obtaining a substantially homogenous group of MenB OS derivatives from the population of (a) wherein said group of MenB OS derivatives has an average Dp of about 10 to 20;

(c) introducing a reactive group at a nonreducing end of the derivatives obtained in step (b) to provide single end-activated MenB OS derivatives; and

(d) covalently attaching the end-activated MenB OS derivatives to a carrier molecule to provide a MenB OS glycoconjugate comprising substantially homogenous sized MenB OS moieties.

12. The method of claim 11 wherein the reactive group introduced in step (c) comprises a reactive aldehyde group.

13. The method of claim 11 wherein the sialic acid residue N-acetyl groups of the MenB OS derivatives are replaced with N-propionyl groups.

14. The method of claim 13 wherein the carrier molecule is a bacterial toxoid.

15. The method of claim 13 wherein the carrier molecule is a nontoxic mutant bacterial toxoid.

16. The method of claim 11 wherein the MenB OS derivative has an average Dp of about 12 to about 18.

17. The method of claim 11 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

18. A method for producing a glycoconjugate comprising:

(a) providing a heterogenous population of *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivatives in which sialic acid residue N-acetyl groups are replaced with N-propionyl groups;

(b) obtaining a substantially homogenous group of MenB OS derivatives from the population of (a) wherein said MenB OS derivatives have an average Dp of about 12 to 18;

(c) introducing a reactive group at a nonreducing end of the derivatives obtained in step (b) to provide single end-activated MenB OS derivatives; and

(d) covalently attaching the end-activated MenB OS derivatives to a CRM_{197} bacterial toxoid carrier molecule to provide a MenB OS/CRM_{197} toxoid glycoconjugate

comprising substantially homogenous sized MenB OS moieties.

19. The method of claim 18 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

20. A method for producing a glycoconjugate comprising:

(a) providing a heterogenous population of *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivatives in which sialic acid residue N-acetyl groups are replaced with N-acyl groups;

(b) obtaining a substantially homogenous group of MenB OS derivatives from the population of (a) wherein said group of MenB OS derivatives has an average Dp of about 10 to 20;

(c) introducing a reactive group at a reducing end of the derivatives obtained in step (b) to provide single end-activated MenB OS derivatives; and

(d) covalently attaching the end-activated MenB OS derivatives to a carrier molecule to provide a MenB OS glycoconjugate comprising substantially homogenous sized MenB OS moieties.

21. The method of claim 20 wherein the reactive group introduced in step (c) comprises an active ester group.

22. The method of claim 20 wherein the sialic acid residue N-acetyl groups of the MenB OS derivatives are replaced with N-propionyl groups.

23. The method of claim 22 wherein the carrier molecule is a bacterial toxoid.

24. The method of claim 22 wherein the carrier molecule is a nontoxic mutant bacterial toxoid.

25. The method of claim 20 wherein the MenB OS derivative has an average Dp of about 12 to about 18.

26. The method of claim 20 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

27. A method for producing a glycoconjugate comprising:

(a) providing a heterogenous population of *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivatives in which sialic acid residue N-acetyl groups are replaced with N-propionyl groups;

(b) obtaining a substantially homogenous group of MenB OS derivatives from the population of (a) wherein said MenB OS derivatives have an average Dp of about 12 to 18;

(c) introducing a reactive group at a reducing end of the derivatives obtained in step (b) to provide single end-activated MenB OS derivatives; and

(d) covalently attaching the end-activated MenB OS derivatives to a CRM_{197} bacterial toxoid carrier molecule to provide a MenB OS/CRM_{197} toxoid glycoconjugate comprising substantially homogenous sized MenB OS moieties.

28. The method of claim 27 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

29. A glycoconjugate produced by the method of claim 11.

30. A glycoconjugate produced by the method of claim 18.

31. A glycoconjugate produced by the method of claim 20.

32. A glycoconjugate produced by the method of claim 27.

33. A vaccine composition comprising the combination of:

a glycoconjugate formed from a *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivative in which sialic acid residue N-acetyl groups are replaced with N-acyl groups, wherein said MenB OS derivative is covalently attached to a carrier molecule and has an average degree of polymerization (Dp) of about 10 to about 20; and

a pharmaceutically acceptable excipient.

34. The vaccine composition of claim 33 wherein the N-acetyl groups of the MenB OS derivative are replaced with N-propionyl groups.

35. The vaccine composition of claim 33 wherein the MenB OS derivative has an average Dp of about 12 to about 18.

36. The vaccine composition of claim 33 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

37. A vaccine composition comprising the combination of:

a glycoconjugate formed from a *Neisseria meningitidis* serogroup B capsular oligosaccharide (MenB OS) derivative in which sialic acid residue N-acetyl groups are replaced with N-propionyl groups, wherein said MenB OS derivative is covalently attached to a CRM_{197} toxoid protein carrier and has an average degree of polymerization (Dp) of about 12 to about 18; and

a pharmaceutically acceptable excipient.

38. The vaccine composition of claim 37 wherein the MenB OS derivative further comprises a C3-C16 long-chain aliphatic lipid covalently attached thereto.

39. The vaccine composition of claim 33 further comprising an adjuvant.

40. The vaccine composition of claim 37 further comprising an adjuvant.

41. A method for preventing *Neisseria meningitidis* serogroup B and/or *E. coli* K1 disease in a mammalian subject comprising administering a therapeutically effective amount of the vaccine of claim 33 to said subject.

42. A method for preventing *Neisseria meningitidis* serogroup B and/or *E. coli* K1 disease in a mammalian subject comprising administering a

therapeutically effective amount of the vaccine of claim 37 to said subject.